

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

**PALTALK HOLDINGS, INC.,**

**Plaintiff,**

**vs.**

**CISCO SYSTEMS, INC.,**

**Defendant.**

**Case No. 6:21-cv-00757-ADA**

**DEFENDANT CISCO SYSTEMS, INC.'S  
OPENING CLAIM CONSTRUCTION BRIEF**

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## I. INTRODUCTION

Plaintiff Paltalk Holdings, Inc. (“Plaintiff”) targets Cisco Systems, Inc.’s (“Defendant”) WebEx product with a soon-to-expire patent relating to a server architecture to support audio conferencing. The parties’ Markman disputes boil down to three main issues: construction of the terms “multiplexed stream” and “PC-based equipment” and the lack of structure provided by the specification for two groups of means plus function terms.

*Multiplexed stream.* To permit clients with and without the capability to mix audio from multiple sources to participate in a single audio conference, the purported invention relies on the fundamental concept of a “multiplexed stream.” While the underlying concepts of multiplexing and mixing are well-known in the field, the term requires construction to explain what the plain and ordinary meaning of the term is to one of ordinary skill in a way that is consistent with the intrinsic record. Absent construction, that technical term will not be accessible to a jury, and the broad shelter of undefined plain and ordinary meaning will permit Paltalk to bend its vague infringement contentions to fit what it finds in discovery. Cisco’s proposed construction, which is consistent with the plain meaning that one of ordinary skill would ascribe to the term in view of the specification, clarifies the term for the jury and captures how the purported invention is directed to multiplexing and mixing streams of audio as described in the specification.

*PC-based equipment.* Unlike “multiplexed stream,” this is not a technical term; it will be accessible to the jury; and it deserves its plain and ordinary meaning. While Paltalk claims that its construction (“device for personal computing”) is consistent with the plain and ordinary meaning, the meet and confer process has revealed that its understanding of this construction would sweep in devices such as phones. Not only is this contrary to the meaning a person of ordinary skill would ascribe to that term, but it directly contradicts the intrinsic record.

*Means plus function claims.* Claims 7 and 8 recite methods for removing packets from

both a multiplexed stream and from a combined packet. Paltalk points to a “mixer” as the structure that performs these functions, but the specification does not disclose how a mixer would be able to achieve removal of the packets. These dependent claims are thus indefinite.

## II. BACKGROUND

United States Patent No. 6,683,858 (“the asserted patent” or “the 858 patent”), filed on June 28, 2000, relates “to servers that manage telephony conferencing.” ’858 patent at 1:10-11. With traditional audio conferencing, participants dialed a central conferencing server over the Public [Switched] Telephone Network (or “PSTN”). ’858 patent at 1:20-25. The centralized server then mixed the individual audio streams for each of the conference participants together and transmitted the mixed audio stream back to each participant. James Bress Decl. (“Bress Decl.”) at ¶ 28. No special equipment was required at the participant’s device—the server did all the heavy lifting for the audio conference.

According to the ’858 patent, the “explosion of people connected to the global ... Internet” in the 1990s drove the development of a technique to transmit voice (i.e., audio) over the Internet, commonly known as Voice over IP (“VoIP”). ’858 patent at 1:30-45. With VoIP came computing devices with different levels of processing capabilities. To address conferencing needs in packet-switched networks with PC-based VoIP clients, “conferencing servers (also called multipoint control units (MCUs)) were developed to host audio conferences where participants connected to a central MCU using PC-based equipment and the Internet, rather than traditional phone equipment over the PTSN.” ’858 patent at 1:55-59; *see* Bress Decl. at ¶ 29-30.

But the capabilities of user audio equipment differed widely prior to the ’858 patent. Specifically, some user equipment included the capability to mix audio streams locally at the

device, whereas other equipment (e.g., traditional telephones) did not. The purported invention of the '858 patent is a hybrid server architecture providing a platform so that devices “can simultaneously participate in a single audio conference application.” '858 patent at 2:18-22. Simply put, the patent discloses an architecture to permit clients with and without the capability to mix audio from multiple sources to participate in a single audio conference. Bress Decl. at ¶ 31.

The patent purports to achieve this by affirmatively determining, at the server, whether a client participating in an audio conference is a “mixing client,” which means that it has the capability to mix audio locally, *i.e.*, on the client side. If “mixing clients” are participating in the conference, the server packages received audio packets associated with individuals actively speaking into a multiplexed packet (referred to in the claims as a “multiplexed stream”) and transmits the multiplexed packet to each “mixing client.” '858 patent at 5:44-50, 5:66-6:2; *see* Bress Decl. at ¶ 32. If “non-mixing clients” are participating in the conference, the server decodes the received audio data associated with the active speakers, mixes the audio data, and encodes the mixed audio into a single audio stream (referred to in the claims as a “combined packet”). '858 patent at 5:55-65. The mixed audio stream is then transmitted to each “non-mixing client.” '858 patent at 5:66-6:2.

The patent also discloses the concepts of maintaining an active speaker list and echo suppression into its centralized platform. Bress Decl. at ¶ 33. The '858 patent explains that an active speaker list is a listing of participants who are “actually speaking rather than simply listening” during a conference. '858 patent at 5:4-23. The patent provides no details on how the server determines whether a participant is an active speaker, assuming these techniques were well-known prior to its filing date. *See* '858 patent at 5:4-23. The “echo suppression” discussed

in the '858 patent is a technique to remove an active speaker's audio from either the "multiplexed stream" or the mixed "combined packet" transmitted to the active speaker so that the participant will not "hear themselves speak." '858 patent at 2:57-61; *see* claims 2, 3, 7, 8.

#### A. Person of Ordinary Skill in the Art

A person of ordinary skill in the art, or "POSITA" at the time of the patent would have had a bachelor's degree in electrical engineering, computer science, computer engineering, or another related field, and two to three years of experience working in the field of communication systems, hardware and software design, and network signaling services. Bress Decl. at ¶ 26.

### III. TERMS FOR CONSTRUCTION

#### A. Exemplary Claims with Terms for Construction

Claims 1, 7, and 8 of the '858 patent illustrates how the terms for construction (emphasized below) appear in context:

##### Claim 1

A method of providing audio conferencing for a plurality of clients using varying equipment and protocols, comprising the steps of:

- (1) receiving an audio packet from each of the plurality of clients;
- (2) determining which of the plurality of clients is an active speaker and forming an active speakers list;
- (3) determining that a first subset of the plurality of clients has the capability to mix multiple audio streams;
- (4) determining that a second subset of the plurality of clients does not have the capability to mix multiple audio streams;
- (5) multiplexing said packets of audio data received from each client on said active speakers list into a **multiplexed stream**;<sup>1</sup>
- (6) sending **said multiplexed stream** to each of said first subset of the plurality of clients;
- (7) mixing said packets of audio data received from each client on said active speakers list into one combined packet; and
- (8) sending said combined packet to each of said second subset of the plurality of clients;

whereby said plurality of clients can simultaneously participate in a single audio conference application.

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<sup>1</sup> All emphasis added unless otherwise noted.

**Claim 7**

The system of claim 6, further comprising:

**means for removing**, before said packet sender sends said multiplexed stream to one of the plurality of clients which have the capability to mix multiple audio streams, **from said multiplexed stream** said packets of audio data received from said one of the plurality of clients, when said one of the plurality of clients is on said list of active speakers.

**Claim 8**

The system of claim 6, further comprising:

**means for removing**, before said packet sender sends said combined packet to one of the plurality of clients which do not have the capability to mix multiple audio streams, from said combined packet said packets of audio data received from said one of the plurality of clients, when said one of the plurality of clients is on said list of active speakers.

**B. Agreed Constructions**

Terms and Asserted Claims	Parties' Agreed Construction
"means for storing information indicative of whether each of the plurality of clients has the capability to mix multiple audio streams"	Function: storing information indicative of whether each of the plurality of clients has the capability to mix multiple audio streams  Structure: main memory 408 and processor 404 in Figure 4 as well as equivalents thereof
"means for maintaining"	Function: maintaining a list of each of the plurality of clients that is an active speaker  Structure: control logic, like that of control flow 300 in Figure 3, executed by the computer system 400 in Figure 4 as well as equivalents thereof

**C. Disputed Constructions****i. "a multiplexed stream" / "said multiplexed stream" (claims 1, 2, 6, 7)**

Paltalk's Construction	Cisco's Construction
Plain and ordinary meaning	Plain and ordinary meaning, i.e., "a data structure containing a continuous sequence of interleaved packets of audio data from each client on the active speakers list"



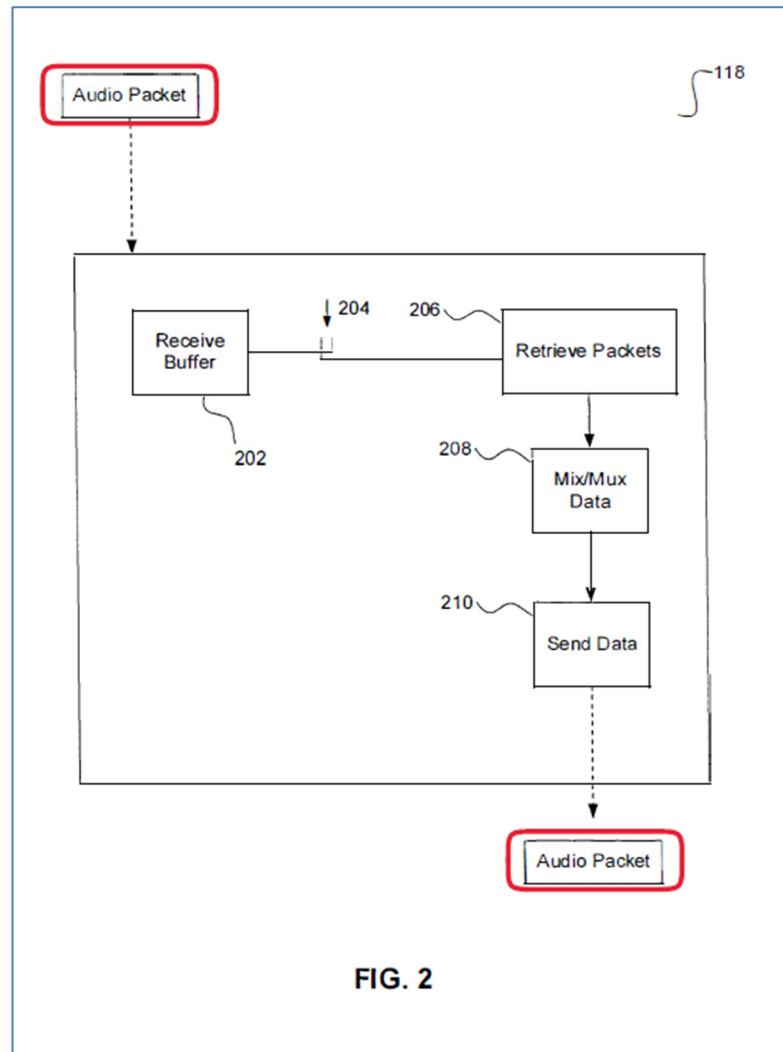
While “multiplexing” may not be immediately accessible to a lay juror, it is a well-known concept in communications referring to the process of interleaving data originating from multiple separate sources into a single data structure. Bress Decl. at ¶41. The concept is analogous to several separate roads of traffic merging into a single lane of cars. *Id.* The cars on each of these roads must be “interleaved” or “multiplexed” so that one car after another travels in the single lane. The asserted claims of the ’858 patent disclose a specific type of multiplexing—i.e., one in which a received audio **packet** from each active speaker in the same audio conference are multiplexed into a data structure referred to as a “multiplexed stream.” *Id.* Paltalk contends that “multiplexed stream” should be ascribed its plain and ordinary meaning but refuses to explain that meaning. While the concept of “multiplexing” is well-known in the art, “multiplexed stream” itself requires explanation to assist the jury and reflect the teachings in the patent. Bress Decl. at ¶ 34. Cisco’s construction provides that explanation.

*First*, Cisco’s construction is consistent with the language of the claims, which require that the “packets of audio data received from each client on the active speakers list” are multiplexed into the “multiplexed stream.” ’858 patent at claim 1. A stream is commonly understood to be a continuous sequence of data. Bress Decl. at ¶ 40-41. In the context of the ’858 patent claims, “a multiplexed stream” must be a sequence of the audio data received in audio packets from different active speakers in a single audio conference placed one-after-the-other in a data structure, which is sent to the “mixing” clients. Bress Decl. at ¶ 41-42. *See* ’858 patent at claim 1. The claim recites “multiplexing,” which a person of skill in the art would understand to mean interleaving data from multiple sources into a single output data sequence. Bress Decl. at ¶ 41. Because the claims specify that “**said** multiplexed stream” must be sent to “**each** of said first subset of the plurality of clients,” the identical stream of data is sent to each

mixing client. *See* '858 patent at claims 1, 6. That is, the claims require that the audio packets received for active speakers in the conference are “interleaved” into a serial sequence for transmission. Bress Decl. at ¶¶ 35, 41-43. The packet sequence in the data structure is “continuous” because the claims do not permit the introduction of other packets (e.g., audio packets from other conferences or control packets) into the multiplexed stream. *Id.* The stream consists of an unbroken sequence of audio packets received from the active speakers. *Id.*

*Second*, Cisco’s construction is compelled by the patent’s sole embodiment, which requires the transmission of a multiplexed data structure, (i.e., a “multiplexed audio packet” ('858 patent at 5:67)) to each mixing client. *See* Bress Dec. at ¶ 43. The detailed description explains that for “mixing clients” (i.e., those with the capability to locally mix audio), “audio data for each and every active speaker is multiplexed.” '858 patent at 5:46-47. Then, the server “sends the **multiplexed audio packet (created in step 314)** to a mixing client.” '858 patent at 5:66-6:1. The embodiment includes a hybrid mixer 118, which “allows the service provider to supply a hybrid network architecture 100 for IP-based client and phone client conferencing.” '858 patent at 4:32-34. This hybrid mixer is programmed to perform both audio mixing and audio multiplexing and is referred to in the patent as “mix/mux.” The patent further stresses that the server’s mix/mux 208 “**forms multiplexed audio packets** to be sent to clients capable of mixing multiple audio streams.” '858 patent at 4:50-52; *see also* at 4:55-56 (“Mixer 118 also includes a packet sender 210 which forwards the **packets created by mix/mux 208** to clients 102 and 108”). That is, the mix/mux is not simply sending the same audio packets received from different active speakers in the same form to a single mixing client—the mix/mux is taking the audio data received in audio packets from different sources (the active speakers) and interleaving them into a single data structure to transmit to a mixing client. *See* Bress Dec. at ¶ 43. This is

further reflected in Figure 2, which illustrates that the output of the mixer is an “audio packet.”  
 See ’858 patent at Figure 2.



*Finally*, although the intrinsic record alone resolves the dispute, Cisco’s construction is also consistent with how one of skill in the art understood the term “a multiplexed stream” in the context of the patent. Bress Decl. at ¶¶ 35, 41-43. For example, a contemporaneous Microsoft Computer Dictionary technical definition defines “multiplexing” as transmitting a number of separate signals simultaneously over a single channel or line. *See* Bress Decl. Ex. 2, Microsoft Computer Dictionary (4th ed. 1999) (CISCO-PAL-00000642) at 302: (“A technique used in

communications and input/output operations for transmitting a number of separate signals simultaneously over a single channel or line.”). Cisco’s construction is also consistent with Microsoft Computer Dictionary’s definition of “stream:” “1. Any data transmission, such as the movement of a file between disk and memory that occurs in a **continuous** flow.... 2. To transfer data **continuously**, beginning to end, in a steady flow.” *Id.* at 424.

As such, a skilled person in the art can ascertain the meaning of “a multiplexed stream” / “said multiplexed stream” in the context of the intrinsic record, but it requires further construction to clarify of plain and ordinary meaning for the jury. Bress Decl. at ¶¶ 34-42. For the foregoing reasons, the term should be construed as “a data structure containing a continuous sequence of interleaved packets of audio data from each client on the active speakers list.”

**ii. “PC-based equipment” (claims 4, 9)**

<b>Paltalk’s Construction</b>	<b>Cisco’s Construction</b>
“devices for personal computing”	Plain and ordinary meaning

The term “PC-based equipment” is a common term, even to lay people, and is not used in a technical way in the context of the patent. The term is used in the specification to describe “personal computers” (’858 patent at 1:44-45) that connect to a conference call using “the Internet, rather than traditional phone equipment over the PSTN.” ’858 patent at 1:58-59. That is the ordinary usage of this word, made even more clear by its contrast to traditional phones. There is no reason to qualify or clarify its meaning. Moreover, while Paltalk appears to take the position that “device for personal computing” is consistent with the plain and ordinary meaning, the meet and confer process has revealed that its understanding of this construction would sweep devices such as “phones.” A person of ordinary skill in the art would not interpret the term as Paltalk proposes, and certainly would not sweep in devices such as phones. Therefore, the term

“PC-based equipment,” which is readily accessible to a lay person, should be given its plain and ordinary meaning, unqualified by Paltalk’s proposal.

#### **D. Means Plus Function Terms**

“[S]tructure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997). And in “cases involving a computer-implemented invention in which the inventor has invoked means-plus-function claiming ... the structure disclosed in the specification [must] be more than simply a general purpose computer or microprocessor.” *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008). For such limitations, “the corresponding structure is the algorithm.” *See Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1253, 1264 (Fed. Cir. 2005). The Federal Circuit carved out a narrow exception to this rule in *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 (Fed. Cir. 2011), which states that an algorithm is required unless the disclosed structure is coextensive with the claimed function. But this is a narrow exception that only applies “in the rare circumstances where any general-purpose computer without special programming” can implement the claimed function. *See Ergo Licensing, LLC v. CareFusion 303, Inc.*, 673 F.3d 1361, 1365 (Fed. Cir. 2012); *see also In re Katz*, 639 F.3d at 1316 n.11. In all other instances, an algorithm is required.

## i. “means for removing” (claims 7 and 8)

Paltalk’s Constructions	Cisco’s Constructions
<p><b><u>Claim 7</u></b>  <u>Function</u>: removing, before said packet sender sends said multiplexed stream to one of the plurality of clients which have the capability to mix multiple audio streams, from said multiplexed stream said packets of audio data received from said one of the plurality of clients, when said one of the plurality of clients is on said list of active speakers</p> <p><u>Structure</u>: mixer 118 in Figures 1 and 2 as well as equivalents thereof</p> <p><b><u>Claim 8</u></b>  <u>Function</u>: removing, before said packet sender sends said combined packet to one of the plurality of clients which do not have the capability to mix multiple audio streams, from said combined packet said packets of audio data received from said one of the plurality of clients, when said one of the plurality of clients is on said list of active speakers</p> <p><u>Structure</u>: mixer 118 in Figures 1 and 2 as well as equivalents thereof</p>	<p><b><u>Claim 7</u></b>  <u>Function</u>: removing, before said packet sender sends said multiplexed stream to one of the plurality of clients which have the capability to mix multiple audio streams, from said multiplexed stream said packets of audio data received from said one of the plurality of clients, when said one of the plurality of clients is on said list of active speakers</p> <p><u>Structure</u>: Indefinite</p> <p><b><u>Claim 8</u></b>  <u>Function</u>: removing, before said packet sender sends said combined packet to one of the plurality of clients which do not have the capability to mix multiple audio streams, from said combined packet said packets of audio data received from said one of the plurality of clients, when said one of the plurality of clients is on said list of active speakers</p> <p><u>Structure</u>: Indefinite</p>

Claims 7 and 8 describe the function of removing the audio packets of the active speaker from the “multiplexed stream” (claim 7) and from the “combined packet” (claim 8). The parties agree on the claimed functions, but they dispute whether the specification discloses corresponding structure. The fundamental issue is that the specification discloses no structure that is clearly linked to the removing function—regardless whether it is removing from the multiplexed stream or the combined packet. *See* Bress Decl. at ¶¶ 44-49.

The functions of claims 7 and 8 require an algorithm as the corresponding structure, because the general purpose processor (server or “MCU”) would not perform the removing

function without special programming. Indeed, the patent explicitly states that special programming is needed to perform the claimed inventions:

Such computer programs, when executed, enable the computer system 400 to perform the features of the present invention as discussed herein. In particular, the computer programs, when executed, enable the processor 404 to perform the features of the present invention. Accordingly, such computer programs represent controllers of the computer system 400.

*See* '858 patent at 7:18-24; *see also id* at 7:29-31 (“The control logic (software), when executed by the processor 404, causes the processor 404 to perform the functions of the invention as described herein.”). These excerpts make clear that the processor (including or controlling the mixer) would not perform the claimed inventions without special programming, so an algorithm must be disclosed as corresponding structure. The algorithm must be clearly linked to the claimed function and describe how to perform it, *i.e.* “how to remove. . . said packets of audio data. . . .” But the specification is silent on this. A POSITA would have the same understanding: a general purpose processor (server or “MCU”) would not be able to perform the removing function without special programming. Bress Decl. at ¶¶ 45-49.

For the multiplexed stream (claim 7), there is only one reference to an “echo suppression function so that party j will not ‘hear themselves speak.’” The '858 patent states, “as will be apparent to those skilled in the relevant art(s), if party j is an active speaker, step 314 will not include party j’s own audio data in the multiplexed packets.” '858 patent at 5:48-52. Step 314 describes “mux active speaker data” and refers to multiplexing the data. '858 patent at Fig. 3; That is, in contrast to the claim, the specification describes a process where the active speaker’s audio data ***is not included*** in the multiplexed stream, but it does not say anything about ***removing*** a packet from a constructed multiplexed stream. Bress Decl. at ¶ 46. As such, the specification contains no algorithm associated with the function for removing packets of audio

data from the multiplexed stream, as required by the claim. Bress Decl. at ¶ 46.

For the combined packet sent to non-mixing clients (claim 8), the only reference to an “echo suppression function so that party j will not ‘hear themselves speak’” is where the patent explains that “step 316 will decode all active speaker audio data for each and every active speaker. However, as will be apparent to those skilled in the relevant art(s), if party j is an active speaker, step 316 will not include party j’s own audio data in the decoded data.” ’858 patent at 5:55-61. “Then, the active speaker data is mixed in step 318 and encoded into a single stream in step 320. For example, if there are two (i.e.,  $k=2$ ) active speakers, step 320 will encode two 90 ms raw frames of data and encode them into a single 90 ms frame of data.” ’858 patent at 5:61-65. Therefore, again, the specification states that the audio data for a specific active speaker is not included in the creation of the combined packet, but it does not describe how to perform the claimed function of “**removing**. . . from said combined packet said packets of audio data.” Bress Decl. at ¶ 46. The plain meaning of the claim language requires removing packets from an existing combined packet (“removing. . . from said combined packet”), and that functionality is not described in the specification such that a person of skill in the art would know how to perform this task. Bress Decl. at ¶ 46.

Paltalk’s assertion that the mixer is the structure that performs the removing function for both claims is insufficient. *See In re Katz Interactive Call Processing Pat. Litig.*, 639 F.3d at 1316 (algorithm required unless the disclosed structure is extensive with the claimed function); *see also Ergo Licensing*, 673 F.3d at 1365 (algorithm required unless “any general purpose computer without any special programming can perform the function.”). As discussed above, the ’858 patent specifically states that special programming is needed to implement the invention. The mixer of the ’858 patent is either part of a server or controlled by one. *See* ’858 patent at



4:5-7. (“Connected to the switch 114, is the service provider's server or multipoint control unit (MCU) 116, which includes a mixer 118.”); *see* ’858 patent at 4:19-22 (“Further, while FIG. 1 illustrates mixer 118 as part of MCU 116, those skilled in the relevant art(s) will appreciate that mixer 118 can, in an alternate embodiment, be separated from, and coupled to, MCU 116.”). A person of skill in the art would understand that without special programming, a server or processor’s mixer would not multiplex and remove packets from a multiplexed stream or remove packets from a combined packet. Bress Decl. at ¶ 47–48. The specification is devoid of any algorithm explaining how to change the typical functionality of a mixer so that it will remove packets from a multiplexed stream or a combined packet. Bress Decl. at ¶ 47–48. And the mixer is not clearly linked to the removing function: no part of the specification describing the mixer even mentions removing packets from said multiplexed stream or said combined packet. *See* ’858 patent at 4:29-56; Figs. 2, 3; *see also* Bress Decl. at ¶ 45-49.

#### IV. CONCLUSION

For the reasons explained above, Cisco respectfully requests the Court adopt its constructions for the disputed terms and find that claims 7 and 8 are indefinite for lack of structure.

Dated: December 14, 2021

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

This is to certify that a true and correct copy of the above and foregoing has been served upon all counsel of record, via the Court's CM/ECF system on this the 14<sup>th</sup> day of December, 2021.

/s/Sarah E. Piepmeier

Sarah E. Piepmeier